

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:  
a substrate having an insulating surface;  
at least first and second semiconductor islands formed over said  
5 substrate wherein each of the semiconductor islands has a channel region and a pair  
of impurity regions;  
an insulating film formed over said substrate, said insulating film  
including at least first and second gate insulating films formed over said first and  
second semiconductor islands, respectively;  
10 at least first and second gate electrodes formed over said first and  
second semiconductor islands with said first and second gate insulating films  
interposed therebetween;  
a wiring formed on said insulating film for electrically connecting one  
of the impurity regions of the first semiconductor island with the second gate  
15 electrode wherein said wiring is connected to said one of the impurity regions  
through a hole opened in said insulating film;  
an interlayer insulating film formed over the first and second  
semiconductor islands, the first and second gate electrodes and the wiring; and  
a pixel electrode formed over said interlayer insulating film  
semiconductor island.
2. The semiconductor device according to claim 1 wherein the thickness  
of said insulating film is 50 to 200 nm.
3. The semiconductor device according to claim 1 wherein the first and  
25 second gate electrodes comprise a material selected from the group consisting of  
doped silicon and a refractory metal.

4. The semiconductor device according to claim 1 wherein the pixel electrode comprises indium tin oxide.

5. The semiconductor device according to claim 1 wherein the first and second semiconductor islands comprise polysilicon.

5 6. A semiconductor device comprising:

a substrate having an insulating surface;

at least first and second semiconductor islands formed over said substrate wherein each of the semiconductor islands has a channel region and a pair of impurity regions;

10 an insulating film formed over said substrate, said insulating film including at least first and second gate insulating films formed over said first and second semiconductor islands, respectively;

15 at least first and second gate electrodes formed over said first and second semiconductor islands respectively with said first and second gate insulating films interposed therebetween;

a wiring formed on said insulating film for electrically connecting one of the impurity regions of the first semiconductor island with the second gate electrode wherein said wiring is connected to said one of the impurity regions through a hole opened in said insulating film;

of the impurity regions of the first semiconductor island;

a first interlayer insulating film formed over the first and second semiconductor islands, the first and second gate electrodes, the wiring and the data line;

25 a voltage supply line formed on said first interlayer insulating film connected to one of the pair of impurity regions of the second semiconductor island;

a second interlayer insulating film formed over said first interlayer insulating film and said voltage supply line;

a pixel electrode formed over said second interlayer insulating film connected to the other one of the pair of the impurity regions of the second semiconductor island.

5           7.     The semiconductor device according to claim 6 wherein the pixel electrode comprises indium tin oxide.

8.     The semiconductor device according to claim 6 wherein the first and second semiconductor islands comprise polysilicon.

10           9.     A semiconductor device comprising:  
a substrate having an insulating surface;  
at least first and second semiconductor islands formed over said substrate wherein each of the semiconductor islands has a channel region and a pair of impurity regions;

15                 an insulating film formed over said substrate, said insulating film including at least first and second gate insulating films formed over said first and second semiconductor islands, respectively;

                  at least first and second gate electrodes formed over said first and second semiconductor islands respectively with said first and second gate insulating films interposed therebetween;

20                 of the impurity regions of the first semiconductor island with the second gate electrode wherein said wiring is connected to said one of the impurity regions through a hole opened in said insulating film;

                  a data line formed on said insulating film connected to the other one of the impurity regions of the first semiconductor island;

25                 a first interlayer insulating film formed over the first and second semiconductor islands, the first and second gate electrodes, the wiring and the data line;

an address line formed on said first interlayer insulating film connected to the first gate electrode wherein said address line extends across said data line;

5 a second interlayer insulating film formed over said first interlayer insulating film and said voltage supply line;

a pixel electrode formed over said second interlayer insulating film connected to the other one of the pair of the impurity regions of the second semiconductor island.

10. A semiconductor device comprising:
- 10 a substrate having an insulating surface;
- at least first and second semiconductor islands formed over said substrate wherein each of the semiconductor islands has a channel region and a pair of impurity regions;
- 15 an insulating film formed over said substrate, said insulating film including at least first and second gate insulating films formed over said first and second semiconductor islands, respectively;
- at least first and second gate electrodes formed over said first and second semiconductor islands respectively with said first and second gate insulating films interposed therebetween;
- 20 a wiring formed on said insulating film for electrically connecting one electrode wherein said wiring is connected to said one of the impurity regions through a hole opened in said insulating film;
- a data line formed on said insulating film connected to the other one
- 25 of the impurity regions of the first semiconductor island;
- a first interlayer insulating film formed over the first and second semiconductor islands, the first and second gate electrodes, the wiring and the data line;

a voltage supply line formed on said first interlayer insulating film connected to one of the pair of impurity regions of the second semiconductor island;

a surface smoothing film formed over said first interlayer insulating film and said voltage supply line;

5 a pixel electrode formed over said surface smoothing film connected to the other one of the pair of the impurity regions of the second semiconductor island.

11. A semiconductor device comprising:

a substrate having an insulating surface;

10 at least first and second semiconductor islands formed over said substrate wherein each of the semiconductor islands has a channel region and a pair of impurity regions;

15 an insulating film formed over said substrate, said insulating film including at least first and second gate insulating films formed over said first and second semiconductor islands, respectively;

at least first and second gate electrodes formed over said first and second semiconductor islands respectively with said first and second gate insulating films interposed therebetween;

20 a wiring formed on said insulating film for electrically connecting one of the impurity regions of the first semiconductor island with the second gate

through a hole opened in said insulating film;

a data line formed on said insulating film connected to the other one of the impurity regions of the first semiconductor island;

25 a first interlayer insulating film formed over the first and second semiconductor islands, the first and second gate electrodes, the wiring and the data line;

an address line formed on said first interlayer insulating film connected to the first gate electrode wherein said address line extends across said data line;

5 a surface smoothing film formed over said first interlayer insulating film and said voltage supply line;

a pixel electrode formed over said second interlayer insulating film connected to the other one of the pair of the impurity regions of the second semiconductor island.

10 12. A semiconductor device comprising:  
a glass substrate;  
a blocking film comprising silicon nitride formed on the glass substrate;

a first insulating film comprising silicon oxide formed on the blocking film;

15 at least first and second semiconductor islands formed on said first insulating film wherein each of the semiconductor islands comprises polysilicon and has a channel region and a pair of impurity regions;

20 a first insulating film formed over said substrate, said insulating film including at least first and second gate insulating films formed over said first and second semiconductor islands, respectively;

second semiconductor islands with said first and second gate insulating films interposed therebetween;

25 a wiring formed on said insulating film for electrically connecting one of the impurity regions of the first semiconductor island with the second gate electrode wherein said wiring is connected to said one of the impurity regions through a hole opened in said insulating film;

an interlayer insulating film formed over the first and second semiconductor islands, the first and second gate electrodes and the wiring; and

a pixel electrode formed over said interlayer insulating film electrically connected to one of the pair of the impurity regions of the second semiconductor island.

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